Pest Management

Iowa Job Sheet

NRCS Natural Resources Conservation Service

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What is pest management?

Pest management is implementing various management practices to limit agricultural pests and to reduce potential adverse effects on plant growth, crop and forage production, and the environment. It should be compatible with your crop and forage production goals and the environment.

Pest Management may include cultural, chemical and biological controls of weeds, insects, diseases and other pests. It involves crop scouting to determine what pests are present and, if reduction of a pest problem is needed, what type of measure will be most successful. The need and type of treatment is generally based on economic thresholds of potential crop loss.

How it helps the land

Pest management uses a combination of strategies to control, rather than eliminate, pest populations. Pest management may reduce reliance on chemical control methods. By reducing the use of chemicals that could be lost in surface water and ground water, contamination risks are lessened.

Requirements of pest management

1. Identify and understand target pests, life cycle periods when they are most vulnerable to control methods, and the best mechanical, biological or chemical control methods.

2. Use timely field monitoring (scouting) to evaluate crop progress, pest presence, damage and times when pests are most vulnerable to control methods. Scouting records should include:

- crop establishment and stand counts
- crop nutrient conditions
- weed species and populations
- insect infestation
- seedling, root, foliar and stem diseases
- crop growth stages
- harvest guidelines

3. Assess effectiveness and costs of control measures. The economic threshold (point at which value of the crop loss exceeds the cost of the pest control) is used to determine when controls are needed. If pest populations exceed the economic threshold, a combination of controls that provides the best return and least environmental risk is used.

4. Evaluate alternatives and select appropriate tactics. Crop and forage production practices that favor the crop and reduce pest populations should be used whenever possible.

Making pest management decisions

Alternative pest management methods include cultural, biological and chemical controls. An effective pest management program may use aspects of all these methods.

Cultural methods include crop rotation, mechanical cultivation, management of soil fertility and pH to improve crop growth, and adjustment of planting dates to reduce weed, insect and disease problems.

Biological controls may include the introduction of natural enemies of target pests and use pest tolerant or pest resistant varieties of crops, such as Bt corn.

Chemical controls may include commercial herbicides, insecticides and fungicides. If chemical control is chosen, contact your local NRCS office to evaluate the potential of a pesticide to

runoff or leach. The NRCS will:

- Evaluate the environmental hazards of the site.
- Assess pesticide characteristics to determine potential water quality impacts.

If the potential for leaching or surface runoff is high, a potential hazard exists. Mitigation techniques need to be adopted to reduce the risk to the environment. Mitigation techniques vary, depending on the potential loss due to leaching or runoff. They may include some of the following.

Erosion control practices:
- residue management
- contour buffer strips
- filter strips
- crop rotations

Management practices:
- alternative pesticides
- band application
- cultural controls
- biological controls
- spot spraying

All pesticides must be applied according to product label and to federal, state and local regulations. Individuals who purchase and apply restricted use pesticides must be fully trained and certified by the Iowa Department of Agriculture and Land Stewardship (IDALS).

Checklist

Use the checklist to the right as a tool to prepare for the requirements of NRCS Conservation Practice Standard 595–Pest Management.

Where to get help

For assistance in planning a pest management system, contact your local Natural Resources Conservation Service (NRCS) office, County Extension Service office, or a local agronomist. Pest management is generally part of an Integrated Crop Management (ICM) plan that would also include nutrient management.

References

- Iowa Job Sheet, *Pesticide Management*
- www.extension.iastate.edu/pubs/

Pest Management Plan Checklist and Certification

Producer/Owner _____

Address _____

Phone No. _____ Tract No. _____

Pasture Acres _____ Other Acres _____

Targeted Species: _____

Control Method: Cultural Biological Chemical Mechanical

Win PST3 rating: _____

Mitigation Techniques (if needed) _____

Operation and Maintenance: calibration done, tips checked, bee keepers, etc.

I. Plan and soil map
II. Setbacks identified
III. Timely scouting
    a. Evaluate crop emergence (2-3 weeks post planting)
        1. Population
        2. Stand consistency
        3. Weed pressure
        4. Insect pressure
        5. Ground cover residue
    b. 3-7 weeks post planting
        1. Evaluate weed control
        2. Insects—evaluate levels according to economic threshold
    c. 3-10 days post application of products
        1. Apply appropriate re-entry times
        2. Evaluate effectiveness of treatment
        3. Document each trip (why, when, how, etc.)
    d. Reproductive stage
        1. Evaluate pests
        2. Evaluate crop growth and health
    e. Prior to harvest
        1. Evaluate decisions made throughout the season
        2. Conduct tissue tests to evaluate nitrogen use
IV. Always follow label directions
V. Maintain records on a field basis for three years

I certify that the above activities are documented during the _____ crop year.

_____ _____

Signature Date